

ascertained by withdrawing air through a small amount of saline in the attached syringe. When the Luer-Lok system is connected, ventilation can be accomplished at standard rates approximating 12 to 15 breaths per minute. An inspiratory-expiratory ratio of 1:3 is adequate. Equipment should include a 10-gauge catheter for secondary puncture of the cricothyroid membrane to allow expiratory flow in the event of total obstruction. Patients are best monitored by observing the excursion of the chest wall and by listening for expiratory air flow at the oral opening.

This technique has been applied with very satisfactory results in patients with progressive airway obstruction due to neoplasia and extensive neck infection. A major problem can occur when total obstruction to expiratory air flow exists, but this is a rare phenomenon. Our initial experience with this technique was obtained in an animal laboratory. It is highly recommended that physicians intending to use transtracheal ventilation develop their experience in that setting. Transtracheal ventilation can be used to considerable advantage in patients with distorted anatomy due to head and neck surgical procedures. The technique may be used to provide ventilation in patients who are otherwise difficult anesthetic cases and who would require either a tracheotomy done while they are awake or a fiberoptic nasal intubation. With the use of transtracheal ventilation, the airway can be stabilized and general anesthesia established, thus saving considerable patient discomfort and operating room time. We have used transtracheal ventilation as the only form of airway control in selected patients undergoing endoscopic examination and biopsy. Results of blood gas monitoring during this form of ventilation have documented very acceptable blood gas measurements over a 30-minute period.

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Retrolabyrinthine Vestibular Nerve Section

SELECTIVE SECTION of the vestibular nerve is effective in relieving intractable vertigo without damaging hearing. This procedure may be indicated for Meniere's disease or for a variety of other conditions that affect the inner ear and produce disabling vertigo, such as temporal bone fractures or labyrinthitis. Until recently an approach through the middle fossa was used to section the vestibular nerve. Recently we have used an approach through the mastoid behind the labyrinth for this purpose. This new approach has resulted in equivalent relief of vertigo and reduced morbidity.

After a patient is given general endotracheal anesthesia, a standard postauricular incision is made and a complete simple mastoidectomy is done. Bone removal is then continued over the posterior fossa dura and the sigmoid sinus into the suboccipital area. The posterior fossa is entered by an incision parallel to the sigmoid sinus posterior to the endolymphatic sac. The fifth through eleventh cranial nerves are easily exposed with minimal cerebellar retraction. The

vestibular division of the eighth cranial nerve is separated from the more inferiorly lying cochlear division and sectioned with a fine hook. The mastoid defect is obliterated with strips of fat taken from the abdomen.

We recently evaluated 52 patients who had retrolabyrinthine vestibular nerve section. Of these, 93% reported substantial diminution of vertigo and 86% were able to resume normal activities. None of the patients had complete loss of hearing or facial palsy and there were no serious complications. These results compare favorably with those of middle fossa vestibular neurectomy as an effective means of controlling intractable vertigo while preserving hearing. The morbidity of this procedure is slight and there has been no mortality.

In addition to vestibular nerve section, this approach has also been used for microvascular decompression of the fifth nerve for tic douloureux and of the seventh nerve for hemifacial spasm. Section of the fifth, ninth and tenth cranial nerves for intractable pain due to head and neck tumors is also easily accomplished by this approach.

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Carotid Artery Grafting in Head and Neck Cancer

INVOLVEMENT OF THE carotid artery in malignant head and neck tumors has always carried a very poor prognosis. With the advent of postoperative radiation therapy, myocutaneous flap reconstruction and extracranial to intracranial microvascular reconstruction, however, surgeons can be more aggressive in resecting these lesions.

After completely examining a patient to ascertain the presence of a facial or superficial temporal pulse (indicative of patent common and external carotid systems), a clinician should determine internal carotid artery patency and collateral cerebral circulation by a supraorbital Doppler examination, oculopneumoplethysmography and either intravenous digital subtraction angiography or, most commonly, four-vessel cerebral angiography that shows ipsilateral common carotid compression.

At tumor extirpation, a team consisting of a head and neck surgeon, a vascular surgeon and a neurosurgeon is available. During the radical neck dissection, the collateral cerebral blood pressure is determined via internal carotid artery back pressure readings. A 22-gauge needle is inserted into the common carotid artery to obtain a pressure reading, after which the common and external carotid arteries are clamped and a second reading is taken, this being the internal carotid back pressure. If the back pressure is in excess of 50 mm of mercury, our experience has shown that a patient can tolerate excision of the involved ipsilateral internal carotid artery with small risk of permanent neurologic sequelae.

A back pressure of less than 50 mm of mercury indicates